

538,902

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
22 July 2004 (22.07.2004)

PCT

(10) International Publication Number  
**WO 2004/061117 A2**

(51) International Patent Classification<sup>7</sup>:

C12Q

(21) International Application Number:

PCT/US2003/034683

(22) International Filing Date: 31 October 2003 (31.10.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/435,817 20 December 2002 (20.12.2002) US

(71) Applicant (for all designated States except US): UNIVERSITY OF MEDICINE AND DENTISTRY OF NEW JERSEY [US/US]; 335 George Street, New Brunswick, NJ 08901 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): KAPLAN, Jeffrey, B. [US/US]; 4 Capricorn Lane, Monsey, NY 10952 (US).

(74) Agents: LICATA, Jane, Massey et al.; Licata & Tyrrell P.C., 66 E. Main Street, Marlton, NJ 08053 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

## Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: COMPOSITIONS AND METHODS FOR ENZYMATIC DETACHMENT OF BACTERIAL AND FUNGAL BIOFILMS

(57) Abstract: Isolated nucleic acid sequences and amino acid sequences for soluble,  $\beta$ -N-acetylglucosaminidase or active fragments or variants thereof which promote detachment of bacterial cells from a biofilm are provided. An isolated mutant bacteria which forms biofilm colonies which tightly adhere to surface but which are unable to release cells into the medium or spread over the surface is also provided. In additions, methods are described for modulating detachment of bacterial cells from biofilm by mutating soluble,  $\beta$ -N-acetylglucosaminidase or altering its expression or activity are also provided. Also provided are compositions, methods and devices for preventing, inhibiting and treating bacterial infections.

WO 2004/061117 A2